JOURNAL OF THE FRANKLIN INSTITUTE

INDEX TO VOLUME 325

1988

SUBJECT INDEX

Papers are listed under subject headings with first author's name in parenthesis. All authors are listed with titles of their papers in alphabetical order in the Author Index.

A

Abrupt nonlinearity (Bartos), 465
Amplitude and phase equalization (Unbehauen), 369
Automatic control (Unbehauen), 369

B

Balanced realization (Hinamoto), 207
Bilinear transformation (Erfani), 385
Buckling of bars (Panayotounakos), 621

C

C^3 Systems (Blackmore), 95
Chaos theory (Blackmore), 95
Circuit theory (Reza), 335
Compensation (Unbehauen), 369
Constant group delay (analog domain) (Omprakash Sharma), 61
Constant group delay (discrete domain) (Omprakash Sharma), 393
Control loops (Quinn), 705
Control systems (Bar-Kana), 687
Controller synthesis (Hsiao), 669
Controllers for large sampling time (Sanathanan), 277
Cosmology (Chen), 731
Coupled oscillators (Kaplan), 49
Current loop (Gavril), 595

D

Decentralized control systems (Lee), 359
Decoupling (Christodoulou), 1
Design in the time domain (Sanathanan), 277
Detector relative efficiency (Wong), 755
Diagonal dominance (Tsay), 485
Differential equations (Panayotounakos), 621
Diffusion through anisotropic media (Nalesso), 165
Digital controller design (Sanathanan), 277
Digital filters (Erfani), 385
Direct method (Razzaghi), 125
Discrete domain transfer function (Omprakash Sharma), 393
Discrete large-scale systems (Lee), 359
Discrete Legendre orthogonal polynomials (Shyu), 509
Discrete systems (Wu), 659
Disk-cyclide coordinate systems (Kuchel), 505
Distributed control of thin plates (Sadek), 775
Distributed parameter systems (Sadek), 565
Dynamical systems (Blackmore), 95

E

Elastica of straight bars (Panayotounakis), 621
Elasticity (Nowinski), 585
Electric circuit (Matsumoto), 345
Electrical networks (Chen), 559
Electromagnetic fields (Gavril), 595
Electromagnetic wave propagation (Nalesso), 165
Equations of state (Katz), 107

F

Fast Fourier transformation (Adhami), 547
Fault analysis (Tung), 133
Field computations (Sheng), 315
Finite field arithmetic (Adhami), 547
Finite-time optimal control (Shyu), 509
Finite word length coefficients (Karayiannis), 635
Fractional operators (Padovan), 247
Frequency domain (Quinn), 705
Fuzzy membership function (Xie), 155

G

Galaxy clustering (Chen), 731

Galaxy correlation function (Chen), 731
Gray level images (Xie), 155

G

HVDC transmission (Sheng), 315
Hypergeometric functions (Miller), 787

I

Impulse response (Lepschy), 17
Incompressible laminar boundary layer flow (Hyun), 419
Integrals of Bessel Functions (Miller), 787
Invariant transformations (Fortuna), 143
Ion flow fields (Sheng), 315

J

Jet atomization (Weinstein), 537
Jet instability (Weinstein), 537

L

Laplace transform (Kitahara), 221
Large scale non-linear systems (Lee), 359
Limit cycle analysis (Tsay), 721
Linear systems (Reza), 335
Linear time-invariant singular systems (Christodoulou), 1
Logic and nets (Murata), 73

M

Matching polynomial (Farrell), 527
Maximum principle (Sadek), 565
Model-order reduction technique (Papadopoulos), 403
Model matching (Quinn), 705
Model reduction (Fortuna), 143
Multi-time-scale systems (Dauphin-Tanguy), 745
Multivariable feedback control systems (Tsay), 485, 721
Multivariable system (Mukherjee), 235

N

Necessary and sufficient conditions (Sadek), 565
Network theory (Reza), 335
Neyman–Pearson tests (Wong), 755
Noise spectral uncertainties (Hsiao), 669
Nonlinear controllers (Bar-Kana), 687
Nonlinear data observability (Mohler), 443
Nonlinear oscillators (Kaplan), 49
Nonlinear stochastic system (Hsiao), 189
Number theoretic transforms (Adhami), 547
Numerical inversion (Kitahara), 221

O

One-dimensional filter design (Omprakash Sharma), 61
Optimal control (Dauphin-Tanguy), 745
Optimality conditions (Sadek), 775
Order reduction (Mukherjee), 235

P

Petri nets (Murata), 73
Pole placement in singular systems (Christodoulou), 1
Pole-placement method (Papadopoulos), 403

R

Reduced order modelling (Mukherjee), 235
Reflection coefficient (Chen), 559
Robust control (Hsiao), 189
Rook polynomial (Farrell), 527
Roundoff noise synthesis (Hinamoto), 27
Routh test (Lepschy), 695

S

Safety of structures building code (Liu), 435
Scattering matrix (3×3) (Wang), 653
Scattering parameters (Chen), 559
Scattering variables (Paynter), 295
Separation criterion (Hyun), 419
Simplification in modelling (Dauphin-Tanguy), 745
Stability (Wu), 659
Stability of Couette flow (Takhar), 609
Stability of nonlinear controllers (Bar-Kana), 687
Stability tests (Lepschy), 695

Stability topics in fluid mechanics (Weinstein), 537
Star-diagonalization (Wang), 653
Statistical detection (Wong), 755
Structures, blast-resistant (Katz), 107
Symbolic algebraic computation (Kuchel), 505
System approximation (Lepschy), 17
System modeling (Paynter), 295
Systems (Wu), 659

T

Taylor series (Razzaghi), 125
Taylor vortices (Takhar), 609
Test set generation algorithms (Tung), 133
Thermal stability (Liu), 435
Three-dimensional separable-denominator transfer functions (Hinamoto), 207
Three-dimensional separable-denominator recursive digital filters (Hinamoto), 27
Torsion (Nowinski), 585
Transient and time domain (Nalesso), 165
Two-dimensional IIR digital filters (Karayiannis), 635

V

Variational method (Sadek), 775
Variational problems (Razzaghi), 125
Viscoelastic system response (Padovan), 247
Volterra–Fourier method (Bartos), 465

X

X-rays (Matsumoto), 345

AUTHOR INDEX

Full titles are listed only under first authors; all co-authors are cross-referenced.

A

Adhami, R.: Fast Fourier transformation based on number theoretic transforms, 547
Ahmadi, M.: See Erfani, S., 385
Ali, M. A.: See Takhar, H. S., 609

B

Bar-Kana, I.: On the Lur'e problem and stability of nonlinear controllers, 687
Bartos, J.: Characterization of abrupt nonlinearity by the Volterra–Fourier method, 465
Bedrosian, S. D.: See Xie, W.-X., 155
Blackmore, D.: Chaos in a simple identification/counter model, 95
Blake, I. F.: See Wong, B. C. Y., 755
Boglou, A. K.: See Papadopoulos, D. P., 403
Brown, D. P.: See Wu, J.-W., 659
Bulliman, B. T.: See Kuchel, P. W., 505
Busch-Vishniac, I. J.: See Paynter, H. M., 295

C

Chang, P. K.: See Hyun, K. S., 419
Chen, B.-S.: See Hsiao, F.-H., 189, 669
Chen, J.: Theoretical forms of *n*-point galaxy correlation functions, 731
Chen, W.-K.: On complex-normalized reflection coefficients, 559
Christodoulou, M. A.: Decoupling and pole placement in singular systems using state and output feedback, 1

D

Dauphin-Tanguy, G.: Improvement in near-optimum regulators for singularly perturbed systems, 745

E

Erfani, S.: An explicit formula for the general bilinear transformation of polynomials with its application, 385

F

Farrell, E. J.: On the matching polynomial and its relation to the rook polynomial, 527
Fei, Z.: See Chen, W.-K., 559
Fortuna, L.: A new representation of SISO systems for studying approximated models, 143

G

Gallo, A.: See Fortuna, L., 143
Gavril, S.: Electromagnetic fields of a current loop placed in an arbitrary position near the interface of two conducting media, 595
Gela, G.: See Sheng, J. N., 315
Guo, Y.: See Padovan, J., 247

H

Hamanaka, T.: See Hinamoto, T., 27
Han, K.-W.: See Tsay, T.-S., 485, 721
Hinamoto, T.: Approximation and minimum roundoff noise synthesis of 3-D separable-denominator recursive digital filters, 27
Hinamoto, T.: Balanced realization and model reduction of 3-D separable-denominator transfer functions, 207
Hsiao, F.-H.: LQG optimal and robust controller design for nonlinear stochastic systems: multivariable case, 189
Hsiao, F.-H.: LQG controller synthesis with noise spectral uncertainties and nonlinear time-varying perturbations, 669
Hwang, C. S.: See Mohler, R. R., 443

Hwang, C.: See Shyu, K.-K., 509
Hyun, K. S.: The criterion of separation of incompressible laminar boundary layer flow over an axially symmetric body, 419

K

Kanamori, H.: See Matsumoto, M., 345
Kaplan, B. Z.: Canonic coupling of oscillators in a chain, 49
Karayiannis, N. B.: Design of symmetric 2-D IIR digital filters with finite word length coefficients, 635
Katz, J. I.: Superhardened structures, 107
Kerns, D. V.: See Tung, L. J., 133
Kitahara, N.: A numerical inversion of Laplace transform and its application, 221
Kuchel, P. W.: Expressions for surfaces in disk-cyclide coordinates: derivations using symbolic computation, 505

L

Lee, T. N.: Decentralized stabilization of nonlinear continuous time delay systems, 359
Lepschy, A.: System approximation by matching the impulse response energies, 17
Lepschy, A.: A geometrical interpretation of the Routh test, 695
Liu, C. K.: Thermal stability of Landau slabs with constant and unequal boundary temperatures, 435

M

Maekawa, S.: See Hinamoto, T., 27, 207
Matsumoto, M.: Analysis of high-voltage waveforms in 3-phase 12-pulse type X-ray units, 345
Matsuyama, K.: See Murata, T., 73
Mertzios, B. G.: See Christodoulou, M. A., 1
Mian, G. A.: See Lepschy, A., 17, 695
Miller, A. R.: A Lipschitz–Hankel integral of K_0, 787
Mishra, R. N.: See Mukherjee, S., 235
Misteri, F.: See Wang, A. P., 653
Mohler, R. R.: Nonlinear data observability and information, 443
Mor, A.: See Gavril, S., 595
Mukherjee, S.: Reduced order modelling of linear multivariable systems using an error minimization technique, 235
Murata, T.: Inconsistency check of a set of clauses using Petri net reductions, 73

N

Nagahara, D.: See Kitahara, N., 221
Nalesso, G. F.: Transient behaviour of the electromagnetic field in anisotropic conducting media, 165
Nowinski, J. L.: On the Saint-Venant torsion of elastic diatomic bars, 585
Nunnari, G.: See Fortuna, L., 143

O

Omprakash Sharma, M. S.: A new approximation of constant group delay in the analog domain, 61
Omprakash Sharma, M. S.: A new approximation of constant group delay in the discrete domain, 393

P

Padovan, J.: General response of viscoelastic systems modelled by fractional operators, 247
Panayotounakos, D. E.: Analytic solutions for nonlinear differential equations describing the elastica of straight bars: theory, 621
Papadopoulos, D. P.: Pole-placement and model-order reduction techniques applied to a hydro-unit—system for dynamic stability improvement, 403
Paynter, H. M.: Wave-scattering approaches to conservation and causality, 295
Polge, R. J.: See Adhami, R., 547
Pomerantz, M. A.: See Chen, J., 731

Q

Qin, B. L.: See Sheng, J. N., 315
Quinn, S. B., Jr: Flexible compensator design for unity-feedback control loops, 705

R

Radovic, U. L.: See Lee, T. N., 359
Radparvar, K.: See Kaplan, B. Z., 49
Ramachandran, V.: See Erfani, S., 385
Ramachandran, V.: See Omprakash Sharma, M. S., 61, 393
Razzaghi, Mehdi: See Razzaghi, Mohsen, 125
Razzaghi, Mohsen: Taylor series direct method for variational problems, 125
Reza, F. M.: On maximal power transfer problem, 335
Rotella, F.: See Dauphin-Tanguy, G., 745

S

Sadek, I. S.: Necessary and sufficient conditions for the optimal control of distributed parameter systems subject to integral constraints, 565
Sadek, I. S.: A constructive method for the distributed control of thin plates, 775
Sanathanan, C. K.: A time domain method for digital controller design, 277
Sanathanan, C. K.: See Quinn, S. B., Jr, 705
Sheng, J. N.: DC ion flow fields: uniqueness of solution and application of the charge simulation method, 315
Shimonishi, J.: See Hinamoto, T., 207
Shyu, K.-K.: Optimal control of linear time-varying discrete systems via discrete Legendre orthogonal polynomials, 509
Soundalgekar, V. M.: See Takhar, H. S., 609
Sun, H. H.: See Bartos, J., 465
Swamy, M. N. S.: See Omprakash Sharma, M. S., 61, 393

T

Takhar, H. S.: Effect of radial temperature gradient on the stability of flow in an annulus with constant heat flux at the inner cylinder: wide-gap problem, 609
Theocaris, P. S.: See Panayotounakos, D. E. 621
Tsay, T.-S.: Diagonal dominance design of multivariable feedback control systems using the stability-equation method, 485
Tsay, T.-S.: Limit cycle analysis of nonlinear multivariable feeedback control systems, 721
Tung, L. J.: An algorithm to generate complete test sets for stuck-at faults in combinational logic circuits, 133

U

Unbehauen, H.: Automatic amplitude and phase equalization of "n" sinusoidal signals of the same frequency, 369

V

Vakilzadeh, I.: See Unbehauen, H., 369
Varoufakis, S. J.: See Karayiannis, N. B., 635
Venetsanopoulos, A. N.: See Hinamoto, T., 27, 207
Venetsanopoulos, A. N.: See Karayiannis, N. B., 635
Viaro, U.: See Lepschy, A., 17, 695

W

Wan, J.-L.: See Chen, W.-K., 559
Wang, A. P.: Star-diagonalization of 3×3 scattering matrices, 653
Weinstein, M.: The effect of a vertical magnetic field on the capillary instability of a liquid–liquid jet, 537
Weinstein, M.: See Gavril, S., 595
Wong, B. C. Y.: Detector relative efficiency analysis in non-Gaussian noise, 755
Wu, J.-W.: On the stability of shift variant discrete systems, 659

X

Xie, W.-X.: Experimentally derived fuzzy membership function for gray level images, 155

Y

Yan, Z.: See Sheng, J. N., 315
Yano, H.: See Kitahara, N., 221

Z

Zou, Z.: See Chen, J., 731

Reproduced with the permission of Pergamon Press Inc., by University Microfilms Inc. Duplication or resale without permission is prohibited.